Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of:	)	
	)	
Digital Audio Broadcasting Systems	)	
And Their Impact on the Terrestrial	)	MM Docket No. 99-325
Radio Broadcast Service	)	

FURTHER NOTICE OF PROPOSED RULEMAKING AND NOTICE OF INQUIRY

Adopted: April 15, 2004 **Released: April 20, 2004**

Comment Date: June 16, 2004
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By the Commission: Chairman Powell, Commissioners Copps and Adelstein issuing separate statements.

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I. INTRODUCTION

1. In the *Digital Audio Broadcasting* Report and Order ("*DAB R&O*"), we selected in-band, on-channel ("IBOC") as the technology enabling AM and FM radio broadcast stations to commence digital operations.[1] We announced notification procedures that will allow operating AM and FM radio stations to begin digital transmissions immediately on an interim basis using the IBOC system developed by iBiquity Digital Corporation ("iBiquity").[2] We concluded that the adoption of a single IBOC transmission standard will facilitate the development of digital services for terrestrial broadcasters. We also stated that the dramatic improvement in digital audio quality would outweigh any limits on analog operations and those broadcasters concerned about the loss of bandwidth may nevertheless continue to operate in an analog-only mode. We, however, deferred consideration of final operational requirements and related broadcast licensing and service rule changes to a future date. In this *Further Notice of Proposed Rule Making* ("*FNPRM*"), we seek comment on what rule changes are necessary due to the advent of digital audio broadcasting ("DAB"). Through this proceeding, we seek to foster the development of a vibrant terrestrial digital radio service for the public and seek to ensure that radio broadcasters will successfully implement DAB.[3] We also issue a *Notice of Inquiry* ("*NOI*") on such matters as digital audio content control and international issues, matters that are important to consider in this context, but are not appropriate subjects for a rulemaking at this stage of the DAB conversion process.

II. IN-BAND ON-CHANNEL DIGITAL AUDIO BROADCASTING

A. In-Band On-Channel Technology

2. iBiquity's IBOC DAB technology provides for enhanced sound fidelity, improved reception, and new data services. IBOC is a method of transmitting near-CD quality audio signals to radio receivers along with new data services such as station, song and artist identification, stock and news information, as well as local traffic and weather bulletins. This technology allows broadcasters to use their current radio spectrum to transmit AM and FM analog signals simultaneously with new higher quality digital signals. These digital signals eliminate the static, hiss, pops, and fades associated with the current analog radio system. IBOC was designed to bring the benefits of digital audio broadcasting to analog radio while preventing interference to the host analog station and stations on the same channel and adjacent channels. IBOC technology makes use of the existing AM and FM bands (In-Band) by

[1] *Digital Audio Broadcasting Systems and Their Impact on the Terrestrial Radio Broadcast Service*, 17 FCC Rcd 19990 (2002). There are Petitions for Reconsideration of the *DAB R&O* currently pending before the Commission.

[2] In August 2000, two IBOC proponents, Lucent Digital Radio, Inc. and USA Digital Radio, Inc., merged to create iBiquity Digital Corporation. iBiquity is now the only active IBOC system developer. Among its strategic partners, iBiquity lists most of the largest broadcast group owners, as well as manufacturers of broadcast equipment, consumer electronics, and semiconductors. Consumer Electronics Association ("CEA"), National Association of Broadcasters ("NAB"), and National Public Radio ("NPR") support iBiquity's IBOC system.

[3] Our statutory authority for implementing these goals is derived from, *inter alia*, sections 1, 4, 303, and 307 of the Communications Act. *See* 47 U.S.C. §§ 151, 154, 303, and 307.

adding digital carriers to a radio station's analog signal, allowing broadcasters to transmit digitally on their existing channel assignments (On-Channel).[4] iBiquity IBOC technology will also allow for radios to be "backward and forward" compatible, allowing them to receive traditional analog broadcasts from stations that have yet to convert and digital broadcasts from stations that have converted. Current analog radios will continue to receive the analog portions of the broadcast.[5]

3. The iBiquity IBOC systems evaluated by the DAB Subcommittee of the National Radio Systems Committee ("NRSC")[6] are "hybrids" in that they permit the transmission of both the analog and digital signals within the spectral emission mask of a single AM or FM channel. In the hybrid mode, the iBiquity system places digital information on frequencies immediately adjacent to the analog signal. The digital signals are transmitted using orthogonal frequency division multiplexing ("OFDM"). The FM IBOC system has an extended hybrid mode, with greater digital capacity than the hybrid mode. However, neither the extended hybrid FM system nor the all-digital systems have been tested by the NRSC.[7]

4. The digital system uses perceptual coding to discard information that the human ear cannot hear. This reduces the amount of digital information, and therefore the frequency bandwidth, required to transmit a high-quality digital audio signal. In addition, the iBiquity hybrid system is designed to blend to FM analog when digital reception fails. This blending feature eliminates a digital "cliff effect," that would otherwise result in the complete and abrupt loss of reception at locations where the digital signal fails.

B. The Development of Digital Audio Broadcasting

5. In 1990, the Commission first considered the feasibility of terrestrial and satellite digital radio services.[8] As to the former, the Commission concluded that the digital terrestrial systems then under consideration were undeveloped and that it was premature to engage in discussions regarding DAB standards, testing, licensing, and policy issues. In 1999, the Commission, recognizing that the appropriate technology had matured, commenced this proceeding to foster the further development of IBOC systems and develop a record regarding the issues raised by the introduction of DAB.[9] In the *DAB NPRM*, the Commission, *inter alia*, proposed criteria for the evaluation of DAB models and systems and considered certain DAB system testing, evaluation, and standard selection issues.[10]

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[4] The digital signal is compressed before it is transmitted along with the analog signal. Information about IBOC was obtained from iBiquity's web site. *See* http://www.ibiquity.com/hdradio/hdradio_how.htm.

[5] *Id*

[6] The NRSC is an industry group jointly sponsored by the NAB and CEA.

[7] The iBiquity system also includes all-digital AM and FM modes, which stations could implement if the analog systems are discontinued in the future.

[8] *Amendment of the Rules with Regard to the Establishment and Regulation of New Digital Audio Radio Services*, 5 FCC Rcd 5237 (1990)

[9] *In the Matter of Digital Audio Broadcasting Systems And Their Impact On the Terrestrial Radio Service*, 15 FCC Rcd 1722, 1726-27 (1999) ("*DAB NPRM*").

[10] *Id.* at 1723.

6. Meanwhile, the DAB Subcommittee of the NRSC conducted extensive laboratory tests of several DAB systems. The report of the DAB subcommittee of the NRSC, released on December 3, 2001, evaluated comprehensive field and laboratory tests of the FM IBOC system.[11] The NRSC FM report concluded "that the iBiquity FM IBOC system as tested by the NRSC should be authorized by the FCC as an enhancement to FM broadcasting in the U.S., charting the course for an efficient transition to digital broadcasting with minimal impact on existing analog FM reception and no new spectrum requirements."[12] The Commission sought comment on the NRSC FM report and its conclusions with respect to the Commission's stated DAB policy goals and selection criteria.[13] Thereafter, on April 16, 2002, the NRSC filed its evaluation of iBiquity's AM hybrid system,[14] on which the Commission sought comment in a subsequent public notice.[15] The NRSC AM report concluded that iBiquity "has developed an attractive solution to improve AM listening based on the best of today's available technology."[16] NRSC recommended that iBiquity IBOC should be authorized as a daytime-only enhancement to AM broadcasting, pending further study of AM IBOC performance under nighttime propagation conditions. Based on the record developed in this proceeding at that time, iBiquity and others urged the Commission to permit broadcasters to initiate IBOC transmission on an interim basis prior to the adoption of new licensing rules and procedures.

C. The Digital Audio Broadcasting Report and Order and Interim Standards

7. In the *DAB R&O*, we selected the hybrid AM and FM IBOC systems tested by the NRSC as *de facto* standards for interim digital operation. As of the effective date of the *DAB R&O*, we stated we would no longer entertain any proposal for digital radio broadcasting other than IBOC.[17] We stated that IBOC was the best way to advance our DAB policy goals. We found that this technology was supported in the broadcast industry and was the only approach that could be implemented in the near future. We also found that the iBiquity IBOC system was spectrum-efficient in that it can accommodate digital operations for all existing AM and FM radio stations with no additional allocation of spectrum. The NRSC tests, as explained in the *DAB R&O*, showed that both AM and FM IBOC systems offer enhanced audio fidelity and increased robustness to interference and other signal impairments. The tests

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[11] National Radio Systems Committee DAB Subcommittee Report, "*Evaluation of the iBiquity Digital Corporation IBOC System: Part 1 – FM IBOC,*" submitted in the December 4, 2001, comments of iBiquity Digital Corporation ("NRSC FM report").

[12] NRSC FM Report at 9.

[13] *See Public Notice.* MM Docket No. 99-325; Comment Sought on National Radio Systems Committee DAB Subcommittee's "Evaluation of the iBiquity Digital Corporation IBOC System," DA 01-2932 (Dec. 19, 2001) ("December 2001 Public Notice").

[14] National Radio Systems Committee DAB Subcommittee Report, "*Evaluation of the iBiquity Digital Corporation IBOC System· Part 2 – AM IBOC,*" submitted in April 16, 2002, comments of NRSC ("NRSC AM Report").

[15] *See Public Notice* MM Docket No. 99-325; Comment Sought on National Radio Systems Committee DAB Subcommittee's "Evaluation of the iBiquity Digital Corporation IBOC System," DA 02-899 (Apr. 19, 2002) ("April 2002 Public Notice").

[16] NRSC AM Report at 9.

[17] *See DAB R&O*, 17 FCC Rcd at 20006.

also indicated that coverage for both systems would be at least comparable to analog coverage. We stated that audio fidelity and robustness will greatly improve when radio stations move to digital operations.

8. AM radio has presented certain challenges and concerns in this proceeding. In the *DAB R&O*, we held that AM stations must transmit IBOC signals during daytime hours only, pending a favorable evaluation of AM IBOC under nighttime propagation conditions. Moreover, AM stations implementing IBOC digital transmissions may not simultaneously transmit analog C-QUAM AM stereo. We stated that while we were concerned about the loss of the "legacy" AM analog service, each broadcaster had the voluntary option of implementing IBOC. We found that the technical limitations of the analog technology, including narrow bandwidth and susceptibility to manmade and natural noise, continued to undermine its viability. Additionally, we found that the record in this proceeding presented compelling evidence that AM IBOC had the potential to revitalize AM broadcasting and substantially enhance radio service for the listening public.

9. We established other interim requirements for hybrid IBOC facilities in the *DAB R&O*:[18]

- During interim IBOC operations, stations must broadcast the same main channel program material in both analog and digital modes.
- Interim IBOC facilities must use the station's authorized antenna system. Second antennas for transmitting the digital portion of the hybrid IBOC signal were not permitted.[19]
- Due to interference concerns, stations implementing IBOC must indicate to the Commission the transmitter power output (for both analog and digital transmitters, if applicable) and must certify that the analog effective radiated power remains consistent with the station's authorization. Calculations used to determine the transmitter power shall be retained and made available to the Commission upon request.
- Pending adoption of final rules, a licensee's authorization to transmit IBOC signals may be modified or cancelled by the Commission without prior notice or a right to a hearing.

In the sections to follow, we consider digital audio broadcasting service and operational requirements. We also seek comment on the rule revisions and amendments necessary to establish a permanent regulatory framework for IBOC DAB operations.

III. THE SHIFT TO DIGITAL AUDIO BROADCASTING

A. The Radio Marketplace

10. As of December 31, 2003, there were 11,011 commercial radio stations, as well as 2,552 FM educational radio stations in the United States.[20] Of the commercial stations, 6,217 were FM stations and 4,794 were AM stations. There were also 3,834 FM translator and booster stations. As of

[18] *See id.* at 20004-05.

[19] A public notice seeking comment on the use of a dual antenna system was issued by the Media Bureau after the *DAB R&O* was released. The Media Bureau approved the use of separate antennas on March 17, 2004. *See infra*.

[20] FCC Public Notice--Broadcast Station Totals as of December 31, 2003 (totals released Feb. 24, 2004).

March 2004, there were 3,285 owners of commercial radio stations across the nation.[21] Also on that date, there were 56 radio station owners with 20 or more stations.[22]

11. Currently, 108 million U.S. households,[23] or 98% of all U.S. households, have a radio device.[24] We estimate that there are, on average, 5 radios per household or about 500 million receivers.[25] We also estimate that by the end of 2003, there were about 225 million motor vehicles on the road with radios.[26] There are also millions of radios in use in other vehicles, such as commercial trucks and watercraft, as well as commercial establishments such as restaurants and hotels. All in all, we estimate that there are nearly 800 million radio sets in use in the United States.[27]

12. Terrestrial radio broadcast service competes against new digital audio technologies offering consumers enhanced sound fidelity and other services, including satellite digital audio radio service.[28] For example, Sirius Satellite Radio Inc. ("Sirius") and XM Satellite Radio Holdings ("XM") have built subscription radio services that provide national programming, delivering up to 100 channels of digital music, news, and entertainment directly from satellites to vehicles, homes, and portable radios in the United States. Each company holds one of the two licenses issued by the Commission to build, launch, and operate a national satellite radio system. Both companies launched their services in 2001. XM has about 1,680,000 subscribers and Sirius has over 260,000 subscribers.[29]

13. As of October 1, 2003, over 280 radio stations encompassing more than 100 markets have licensed iBiquity's technology and have begun digital audio broadcasting or are in the process of converting.[30] Cumulatively, these markets include over 145 million listeners or nearly two-thirds of the

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[21] *See* BIA Research Inc., Media Access Pro Database, March 2004.

[22] *See id* The top ten radio groups in the United States are: (1) Clear Channel; (2) Infinity; (3) Cox Radio; (4) Entercom; (5) ABC Radio; (6) Citadel; (7) Radio One, (8) Emmis; (9) Cumulus; and (10) Univision. *See* Jean Grillo, *Top 25 Radio Groups*, BROADCASTING & CABLE, September 29, 2003.

[23] There are about 110.4 million households in the U.S. *See* Nielsen Media Research, U.S. Television Household Estimates, September 2003, at 1.

[24] www.ce.org/publications/books&references/Digital_America/audio/Overview p.1.

[25] In 1999, the Commission recognized that any digital audio conversion requirements must respect listeners' investment in over one-half billion radio receivers. *See DAB NPRM*, 15 FCC Rcd at 1731, n.59.

[26] Virtually all automobiles and trucks in the U.S. have radio receivers and there are over 200 million cars on the road. *See* National Automobile Dealers Association website at nada.com.

[27] According to media reports, there are an estimated 800 million radios in the United States. *See* Patrick Seitz, *Digital Radio Making Some Noise*, INVESTOR'S BUSINESS DAILY, January 7, 2004.

[28] *See Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band*, 12 FCC Rcd 5754, 5756 (1997) ("*SDARS Report and Order*"); *Notice of Proposed Rule Making and Further Notice of Inquiry* in GEN Docket No. 90-357, 7 FCC Rcd 7776, 7778 (1992) ("*Docket No 90-357 NPRM*").

[29] *See* http://www.xmradio.com/newsroom and http://siriusradio.com (accessed on April 5, 2004). We note that Sirius has not updated its subscriber figures as recently as XM has.

[30] *See* http://www.ibiquity.com/press/pr/100103Stations.htm. ibiquity predicts that 600-650 stations will broadcast in a digital mode by the end of 2004. *See* COMMUNICATIONS DAILY, January 7, 2004.

Arbitron-ranked, listening public. Within each of the six cities – New York, Los Angeles, Chicago, San Francisco, Miami and Seattle – previously identified by iBiquity as launch markets for DAB, a minimum of ten stations and up to 18 stations have already licensed iBiquity's technology. Stations in 35 states as well as the District of Columbia and Puerto Rico have demonstrated their commitment to digital audio broadcasting as well. Radio manufacturers have slowly begun selling digital radio receivers directly to the public this year.[31]

14. According to iBiquity, the estimated costs for a station to implement its hybrid IBOC system range from $30,000 to $200,000, with an average cost of $75,000.[32] Conversion costs vary depending on the age and other characteristics of a station's transmitter plant and studio equipment.[33] For example, most new broadcast transmitters are IBOC-compatible. In contrast, some stations may need to replace older transmitters, studio-transmitter links, or studio equipment in order to transmit IBOC. Radio broadcasters can implement IBOC using their existing towers, antennas, and transmission lines, making the technology inherently less costly than, for example, the digital television conversion. In addition, broadcasters may begin interim IBOC operations on a voluntary basis, deferring costs as they deem appropriate.

B. Conversion Policy

15. iBiquity submitted test results for both AM and FM all-digital modes. The all-digital tests were not performed under the auspices of the NRSC, unlike the tests on iBiquity's hybrid IBOC systems. iBiquity requested that the Commission endorse its all-digital systems as well as the hybrid systems. In the *DAB R&O*, we recognized that although a fully digital terrestrial radio service is the ultimate goal, it was premature to endorse systems that have not been subject to comprehensive and impartial testing.[34] We also stated that the adoption of an all-digital standard requires the consideration of novel and complex technical and policy issues that arise only when the constraints of "designing around" the legacy analog transmission standard are eliminated, and we therefore deferred any action on these matters. We recognize that the standard setting bodies have much work to do on an all-digital radio system and we have no standard to evaluate or seek comment upon. Instead, we seek comment on the pace of the analog to hybrid radio conversion and the possibility of an all-digital terrestrial radio system in the future.

16. Congress codified December 31, 2006, as the analog television termination date, but also adopted certain exceptions to that deadline.[35] There is no analogous Congressional mandate for the

[31] Kenwood, Phillips, JVC, Panasonic, and Texas Instruments recently showcased DAB receivers at the 2004 Consumer Electronics Show in Las Vegas. *See* WIRELESS NEWS, January 3, 2004. *See also* Leslie Stimson, RADIO WORLD, October 3, 2003 (as reported in NAB Daily Radio News) (Delphi plans to have in-dash DAB radios available for 2005 model year automobiles). We note that while DAB is still in its nascent stage in the United States, over 300 million people in other countries can now receive up to 600 different DAB services. *See* http://www.worlddab.org/benefits.aspx.

[32] *See* February 19, 2002, comments of iBiquity at 14.

[33] iBiquity's website offers broadcasters a free assessment of the compatibility of their existing equipment with IBOC as part of iBiquity's EASE program to encourage broadcasters to convert to digital operation. *See* http://www.iBiquity.com.

[34] *See DAB R&O*, 17 FCC Rcd at 20003.

[35] *See* Balanced Budget Act of 1997, Pub L. No. 105-33, 111 Stat. 251, § 3003 (codified at 47 U.S.C. § 309(j)(14)(B)).

termination of analog radio broadcasting. We have not considered a date certain when radio stations should commence digital broadcast operations because radio stations are not using additional spectrum to provide digital service, as is the case with digital television, and band-clearing is not required by statute. Based on these factors, we see no immediate need to consider mandatory transition policies of the type contemplated with respect to DTV. However, we recognize the spectrum efficiencies and related new service opportunities inherent in the IBOC system.[36] We also want to enable terrestrial radio broadcasters to better compete with satellite radio services now in operation.[37] As such, we seek comment on what changes in our rules would likely encourage radio stations to convert to a hybrid or an all-digital format.

17. We ask whether the government, the marketplace, or both, should determine the speed of conversion from analog to hybrid, and eventually, to digital radio service, at this time.[38] We understand that the interests of radio listeners are paramount and we do not want to disadvantage any member of the public by forcing the purchase of new radios. In many ways, the move to DAB is similar to the transition from black and white to color television in the 1950s and 1960s, where consumers could continue to receive local television signals even though they may not have had a color television to receive programming in color. In the color television transition, marketplace forces stimulated the introduction of color sets. As a result, television producers eventually ended program production in a black and white format. Here, we anticipate that the more DAB receivers sold, the more radio stations will have an incentive to convert to DAB, and the cycle will repeat itself until all consumers have DAB receivers. We intend to rely on the marketplace to the greatest extent feasible. However, if the marketplace falters, we seek comment on other means to advance the introduction of DAB. In this context, we ask whether we should conduct periodic reviews, in terms of DAB receivers on the market and the number of DAB stations on-the-air, to help us decide what is in the best interests of the public and the broadcasting industry. If so, how frequently should we initiate such reviews?

IV. RULE CHANGES AND AMENDMENTS

A. Service Rules

18. The DAB system provides broadcasters with new flexibility and new capabilities. For example, DAB allows a radio station to scale the digital portion of its hybrid FM broadcast from 96 kbps[39] to lower rates in order to set aside capacity for other associated services. The FM system can be scaled from 96 kbps to 84 kbps or 64 kbps to obtain 12 to 32 kbps for other services. The system also allows broadcasters to use the "extended hybrid modes" whereby the digital sidebands are extended

[36] According to some accounts, digital radio station coverage areas would extend farther in an all-digital environment because there would be no self-interference between the analog signal and the digital signal. *See* Glen Clark, *'Tricks' of HD Radio Revealed*, RADIO WORLD, March 1, 2004.

[37] Some have argued that there is no need to implement a mandatory conversion policy because, unlike the DTV conversion, IBOC uses existing spectrum for both analog and digital services and does not render existing receivers obsolete in its hybrid analog/digital mode. *See, e.g.*, National Public Radio March 21, 2002 reply comments at 3.

[38] We note that British regulators are now discussing a termination date for the United Kingdom's analog radio broadcasting system. *See* Dugie Standeford, *Government Should Plan To End Analog Radio, U.K. Digital Radio Group Says*, COMMUNICATIONS DAILY, January 26, 2004, at p. 8.

[39] KBPS is the acronym for kilobits per second (1000 bits per second).

closer to the analog signal. This allows the broadcaster to obtain 12.5 to 50 kbps of capacity for other services. Broadcasters will be capable of providing through DAB not only a vastly improved high definition audio signal,[40] but also multiple streams of digital audio programming. In addition, the system is capable of non-broadcast uses that are non-audio and/or subscription-based in nature. A flexible DAB service policy would likely increase the ability of broadcasters to compete in an increasingly competitive marketplace, and would allow them to serve the public with new and innovative services.[41] Flexibility could also allow for a more rapid conversion to digital radio. While we tentatively find that a flexible service policy is in the public interest, we seek comment on the following issues before making a final determination.

19. *High Definition Digital Audio Broadcasting.* We seek comment on whether or not we should require broadcasters to provide a minimum amount of high definition audio and, if so, what minimum amount should be required. The public may be served by such a policy because radio stations would provide a free programming alternative to satellite radio and compact discs. We also seek comment on the amount of capacity necessary to allow radio stations to broadcast a high quality digital signal *and* permit the introduction of new datacasting and supplemental audio services. If we adopt a high definition service requirement, should we have separate rules for AM and FM stations?

20. *Digital Audio Multicasting.* The DAB system permits a radio station to broadcast multiple audio programming services within its assigned channel. National Public Radio in fact, is now testing such a broadcasting model under the auspices of its "Tomorrow Radio Project."[42] DAB makes it possible for hybrid and digital radio stations to air not only more music programming, but also public safety services (*e.g.*, national security announcements), assisted living services (*e.g.*, radio reading services), non-English language programming, and news services to underserved populations.[43] We seek comment on how many audio streams a radio station can transmit using IBOC without causing interference or degrading audio quality. Will the availability of additional audio streams spur public demand for digital audio receivers? We seek comment on the ways broadcasters can use this technology to provide greater access to radio for all people. How can the availability of additional audio streams further our diversity goals, particularly for people with disabilities and minority or underserved segments of the community? We tentatively conclude that adopting DAB service rules that encourage more audio

[40] By high definition signal, we mean compact disc-like quality audio, at least for FM stations. DAB also permits radio stations to broadcast in surround sound.

[41] Section 303 of the Act compels the Commission to "study new uses for radio, provide for experimental uses of frequencies, and generally encourage the larger and more effective uses of radio in the public interest." 47 U.S.C. § 303(g).

[42] National Public Radio, in conjunction with the engineering firm of Hammett & Edison, recently released results of its supplemental audio programming tests. *See Tomorrow Radio Field Testing in the Washington, D C , New York City, San Francisco, and Los Angeles (Long Beach) Radio Markets* (rel. Jan. 6, 2004). In these tests, the public radio station's signal in the test markets divided the 96 kbps digital data stream into two channels, 64 kbps and 32 kbps. The tests indicated that mobile reception and service area coverage for the split digital signals was nearly as good as that for the counterpart analog signal. NPR states that the 64 kbps channel sounds "almost as good as a 96 kbps channel and a 32 kbps channel sounds similar to an analog FM broadcast." *See* Mike Janssen, *Two-channel Digital FM 'Works Great,'* Current Magazine, January 19, 2004. We note that if the supplementary 32 kbps digital signal of a multiplexed station fails, it does not blend back into the analog channel; instead, the receiver mutes that channel. *See* Leslie Stimson, *Is Radio Heading for a Split?* RADIO WORLD, March 1, 2004.

[43] *See* NPR February 19, 2002 Comments at 5-6.

streams would promote program diversity, and that, once the Commission adopts a policy in this area, radio stations will no longer need to obtain experimental authority to broadcast multiplexed digital programming.

21. We seek comment on to what extent we should permit radio stations to lease unused or excess airtime to unaffiliated audio programmers. In this context, an unaffiliated entity would schedule the programming output of a particular digital audio stream for a period of time under a contract with the licensee. Radio stations may benefit from leasing unused or excess air-time because they would have additional funds to invest into new programming, which in turn, would benefit the public. We seek comment on whether our diversity goals will be furthered if we allow independent programmers to lease excess capacity from broadcast licensees? How should current regulations, such as our sponsorship identification rules, be applied in this situation?[44] Should the licensee be responsible for ensuring the fulfillment of all regulatory obligations, as is the case for digital television stations?[45] How does Section 310(d) of the Act, regarding transfers of control, apply in this situation?[46] Moreover, how would the Commission's broadcast ownership limits and attribution rules be affected if an unaffiliated programmer, that is also the licensee of another station in the same market, leases one of the additional audio streams? Should there be an overall limit to the amount of programming time a particular radio station can lease to others?

22. Section 73.277 of the Commission's rules pertains to the permissible transmissions of an FM licensee. Under our rules, an FM broadcast licensee or permittee cannot enter into any agreement to supply on its main channel background music or other subscription service (including storecasting) for reception in the place of business of any subscriber.[47] We seek comment on how this rule should apply to digital audio multicasting. Specifically, should this rule be applied to any additional audio services that may be broadcast or should such additional audio channels be exempt from the rule?

23. *Datacasting.* All FM analog stations are authorized to transmit secondary services via an automatic subsidiary communications authorization ("SCA") under Section 73.295 of the Commission's rules. Subsidiary communication services are those transmitted on a subcarrier within the FM baseband signal, not including services that enhance the main program broadcast service or exclusively relate to station operations. Subsidiary communications include, but are not limited to, services such as functional music, specialized language programs, radio reading services, utility load management, market and financial data and news, paging and calling, traffic control signal switching, bilingual television audio, and point to point or multipoint messages.[48] Some FM broadcasters currently provide emergency alert system notifications and paging functions.

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[44] 47 C.F.R § 73.1212.

[45] *See Advanced Television Systems and Their Impact on the Existing Television Broadcast Service*, 12 FCC Rcd 12809, 12835 (1997).

[46] *See* 47 U.S C. § 310(d) ("No construction permit or station license, or any rights thereunder, shall be transferred, assigned, or disposed of in any manner, voluntarily or involuntarily, directly or indirectly, or by transfer of control of any corporation holding such permit or license, to any person except upon application to the Commission and upon finding by the Commission that the public interest, convenience, and necessity will be served thereby.").

[47] *See* 47 C.F.R. § 73.277.

[48] *See* 47 C.F R. § 73.295.

24. Section 73.593 of the Commission's rules pertains to subsidiary communications services broadcast by noncommercial educational FM radio stations. Under our rules, the licensee of a noncommercial educational FM station is not required to use its subcarrier capacity, but if it chooses to do so, it is governed by the SCA rules for commercial FM stations regarding the types of permissible subcarrier uses and the manner in which subcarrier operations are conducted. A significant difference from the commercial FM SCA rules, however, is the requirement that the remunerative use of a noncommercial educational station's subcarrier capacity not be detrimental to the provision of existing or potential radio reading services for the blind or otherwise inconsistent with its public broadcasting responsibilities.[49]

25. Section 73.127 of the Commission's rules is analogous to Sections 73.295 and 73.593 and discusses the use of multiplex transmissions by AM stations. Specifically, the licensee of an AM broadcast station may use its AM carrier to transmit signals not audible on ordinary consumer receivers for both broadcast and non-broadcast purposes.[50] AM carrier services are of a secondary nature under the authority of the AM station authorization, and the authority to provide such communications services may not be retained or transferred in any manner separate from the station's authorization. The grant or renewal of an AM station permit or license is not furthered or promoted by proposed or past multiplexed transmission service. The licensee must establish that the broadcast operation is in the public interest wholly apart from the subsidiary communications services provided.[51] For both AM and FM services, the licensee must retain control over all material transmitted in a broadcast mode via the station's facilities and has the right to reject any material that it deems inappropriate or undesirable.[52]

26. iBiquity, in association with broadcasters and equipment manufacturers, has developed first generation IBOC data services. Using an established standard ID3 format,[53] information services will provide listeners more information on the song, CD title, and artist. In addition, information and host profiles will complement audio commercials and talk radio formats. In the future, Synchronized Multimedia Integration Language ("SMIL"), a protocol used by iBiquity as the foundation for Advanced Application Services ("AAS"), will provide the foundation for the creation and delivery of innovative DAB services.[54] Such advanced services will include commercial applications like: (1) enhanced information services such as breaking news, sports, weather, and traffic alerts delivered to DAB receivers as a text and/or audio format; (2) listener controlled main audio services providing the ability to pause, store, fast-forward, index, and replay audio programming via an integrated program guide with simplified

[49] *See* 47 C.F R. § 73.593

[50] *See* 47 C F.R. § 73.127.

[51] The station identification, delayed recording, and sponsor identification announcements required by Sections 73.1201, 73 1208, and 73.1212 are not applicable to leased communications services transmitted via services that are not of a general broadcast program nature. *See id*; 47 C.F.R. §§ 73.1201, 73.1208, and 73.1212.

[52] *See* 47 C.F.R. §§ 73.127(e) and 73.295(e).

[53] ID3 is a file tagging software used to provide text information such as artist name and song title. ID3 also supports text descriptions with ads, such as phone numbers and Web addresses.

[54] *See* http://www ibiquity.com/technology/standards.htm, for a general discussion of new datacasting opportunities.

and standard user interface options; and (3) supplementary data delivery that will spur the introduction of in-vehicle telematics, navigation and rear-seat entertainment programming.

27. We seek comment on whether we should adopt a flexible policy permitting radio stations to produce and distribute any and all types of datacasting services. Alternatively, are there certain types of services that a radio station must provide, such as enhanced emergency alerts, before it is permitted to offer other data services? Are there certain services that should be prohibited? How should Sections 73.127, 73.295, and 73.593 of our rules be amended? How should our sponsorship identification rules apply? As for noncommercial radio stations, we seek comment on what SCA services would be inconsistent with the public broadcasting responsibilities of hybrid or all-digital noncommercial educational stations.

28. DAB interference with analog SCA services has been an issue in this proceeding. iBiquity performed field tests which showed that, in some circumstances, analog SCA receivers may receive significant new interference from IBOC stations operating on second-adjacent channels. Following the tests, NPR commissioned a study using average receiver performance to estimate the number of listeners potentially affected by additional interference from IBOC in the top 16 radio markets. The results show that, on average, additional interference from IBOC could affect 2.6 percent of eligible receivers within an FM station's service area.[55] In the *DAB R&O*, we raised concerns about this level of interference and its potential impact on radio reading services.[56] We now seek comment on measures to protect established SCA services from interference.

29. *Subscription Services.* Radio stations may wish to offer certain digital audio or data content under a subscription model.[57] In this context, subscription services may be available for a fee or the listener may simply need a code to access the service. We seek comment on whether to permit such a use of the broadcast spectrum. Should we allow for subscription services as long as the licensee provides at least one free digital audio stream, as we do for digital television? One proposal would be to permit subscription services as long as they do not derogate the free services a radio station broadcasts. Section 336 of the Act requires the Commission to collect fees from digital television stations if they use their spectrum to offer subscription ancillary and supplementary services.[58] However, there is no analogous requirement for digital audio broadcasting. We seek comment on whether we should impose spectrum fees for that portion of the spectrum used by broadcasters to provide subscription services. Does the Commission have the authority to impose such fees? Under what provisions? What interest would such a fee serve?[59] What factors should the Commission consider in setting the fee level?[60]

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[55] *See* "Further Report on Analog SCA Compatibility with iBiquity Digital's FM-IBOC System," filed May 24, 2002, in Comments of NPR and IAAIS.

[56] *See DAB R&O*, 17 FCC Rcd at 19996

[57] Robert Struble, CEO of iBiquity, stated that the company will continue to develop new applications for DAB including store and replay, on-demand services, and a "buy button." *See* RADIO WORLD, January 7, 2004.

[58] 47 U.S.C. § 336(e).

[59] *See id.*

[60] We note that Section 336(e) of the Act sets forth factors for the Commission to consider in establishing fees for ancillary DTV services. *Id.*

30. *Equipment issues.* According to iBiquity, its systems provide extensibility in that the first-generation receivers are designed to operate both in the interim hybrid and in all-digital modes.[61] *In the DAB R&O*, we stated that this is an area in which definitive evaluations can only be undertaken after we resolve a number of all-digital issues, such as issues relating to signal architecture.[62] Recognizing the flexibility of the IBOC model, and the possibility of new auxiliary services, we stated that we will address receiver issues in more detail when a formal standard is considered. We seek comment on whether the issues raised, and the policies proposed, in this *FNPRM* require us to address receiver issues at this stage of DAB development. For example, how would the adoption of a high definition audio requirement affect receiver manufacturers? Would current receiver specs need to be changed if we permit multicasting or subscription services?

B. Programming and Operational Rules

31. It is incumbent upon the Commission to ensure that broadcasters serve the "public interest, convenience and necessity."[63] Broadcasters are required to air programming responsive to community needs and interests and have other service obligations.[64] We remain committed to enforcing our statutory mandate to ensure that broadcasters serve the public interest. Our current public interest rules, including those implementing specific statutory requirements, were developed for broadcasters essentially limited by technology to a single, analog audio programming service and minor ancillary services. The potential for more flexible and dynamic use of the radio spectrum, as a result of IBOC, gives rise to important questions about the nature of public interest obligations in digital broadcasting.

32. As stated above, our future rules may allow broadcasters to use their radio frequencies to provide a high definition audio service, multiple standard definition audio services and perhaps other services, some of which may be on a subscription basis. Digital broadcast licensees have public interest obligations.[65] We seek comment on how to apply such obligations to DAB. For example, if a broadcaster chooses to provide multiple digital audio streams, how should public interest obligations apply? We also seek comment on how certain public interest obligations may be applied to subscription-based DAB services.

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[61] *See* February 19, 2002, Comments of iBiquity at 11.

[62] *See DAB R&O*, 17 FCC Rcd at 20003.

[63] 47 U.S.C. § 303.

[64] *See, e.g.*, 47 C.F.R § 73.3526(e)(12) (commercial stations) and 47 C.F.R. § 73.3527(e)(8) (noncommercial stations).

[65] In the *SDARS Report and Order*, the Commission held that satellite radio companies should comply with Sections 312 and 315 of the Act because the political broadcast provisions "make a significant contribution to freedom of expression by enhancing the ability of candidates to present, and the public to receive, information necessary for the effective operation of the democratic process." *See SDARS Report and Order*, 12 FCC Rcd 5754, 5792 (1997)(citation omitted). However, the Commission did not adopt additional public interest programming obligations at that time. Instead, the Commission stated that it reserved the right to do so at a later date *Id See also, Direct Broadcast Satellite Public Interest Obligations,* 13 FCC Rcd 23254 (1998); *Direct Broadcast Satellite Public Interest Obligations, Sua Sponte* Reconsideration, FCC 04-44 (rel. Mar. 25, 2004). In this proceeding, we are not seeking comment on public interest obligations for SDARS licensees.

33. *Community Needs.* One of a broadcaster's fundamental public interest obligations is to air programming responsive to the needs and interests of its community of license. Another well recognized obligation is for a broadcast licensee to respond to the public's need for emergency information. Digital technology may allow a broadcaster to better fulfill these obligations. We seek comment on ways that a broadcaster can implement digital technology to better and more fully meet the needs of its community of license. How does the ability to multicast affect a broadcaster's ability to fulfill these public interest obligations?

34. *Local Programming.* Localism has been a core requirement of broadcast licensees since the inception of the Act 70 years ago.[66] We seek comment on how digital technology can be used to promote localism in the terrestrial radio service. For example, we seek comment on whether to impose a minimum local origination requirement on digital radio transmissions. If a radio station multiplexes its signal, should each audio stream have a local component? If so, how much? Should that local component include some news or other public affairs programming? In the alternative, should we allow a radio station to carry national programming on one or more of its streams if it devotes one of its streams to local programming?

35. We seek comment on how DAB, and future digital audio services, mesh with current statutory requirements, obligations, and prohibitions. We ask whether the change to digital audio broadcasting justifies changes in the Commission's rules and regulations that implement the following provisions and regulations. We also seek comment on any other specific statutory provisions or regulations, not listed below, that may be affected.

36. *Political Broadcasting.* Sections 312 and 315 of the Act contain the political advertising rules for broadcast stations. Section 312(a)(7) of the Act, as amended, requires broadcasters to allow legally qualified candidates for federal office reasonable access to their facilities.[67] Section 315(a) of the Act, as amended, provides candidates with equal opportunities for broadcast time.[68] We seek comment

[66] *See, e g , Deregulation of Radio*, 84 F.C.C. 2d 968, 994 ¶ 58 (1981) ("The concept of localism was part and parcel of broadcast regulation virtually from its inception.").

[67] Specifically, Section 312(a)(7) provides that "[t]he Commission may revoke any station license or construction permit for willful or repeated failure to allow reasonable access to or permit purchase of reasonable amounts of time for the use of a broadcasting station by a legally qualified candidate for Federal elective office on behalf of his candidacy." 47 U.S.C. § 312(a)(7); *see* 47 C F.R. § 73.1944. This right of access does not apply to candidates for state or local offices

[68] Section 315(a) of the Act, as amended, provides that "if any licensee shall permit any person who is a legally qualified candidate for any public office to use a broadcasting station, he shall afford equal opportunities to all other such candidates for that office in the use of such broadcasting station." 47 U.S.C. § 315(a); *see* 47 C.F.R. § 73.1941. Section 73.1940 of the Commission's rules defines "legally qualified candidate" as any person who has publicly announced his or her intention to run for nomination or office, is qualified under the applicable local, state, or federal law to hold office for which he or she is a candidate, and has qualified for ballot placement or has otherwise met all the qualifications set forth in the Commission's rules. 47 C.F.R. § 73.1940. In addition, both the Act and the rules narrowly define the term "use" and exclude from the definition candidates' appearances in *bona fide* newscasts, interviews, documentaries, and the on-the-spot coverage of news events. 47 U.S.C. § 315(a)(1)-(4); *see* 47 C.F.R. § 73.1941(a)(1)-(4). Licensees have no power of censorship over the material broadcast under the equal opportunity provisions of Section 315(a). 47 U.S.C. § 315(a); *see* 47 C.F.R. § 73.1941. Congress recently amended the lowest unit charge provision of Section 315, codified the Commission's existing political file rule, and expanded that rule to require that a broadcast's station's public file contain information regarding certain issue advertising. *See Bipartisan Campaign Reform Act of 2002*, P. Law 107-155, 116 Stat. 81, 2002 ("BCRA"). The Supreme Court upheld these amendments to the Communications Act in *McConnell v FEC*, 124 S.Ct. 619 (2003).

on how each of these political broadcasting rules should be applied in the DAB context. We also seek comment more generally on whether DAB can enhance political discourse and candidate access to radio in other ways.

37. *Emergency Alert System.* Section 73.1250 of the Commission's rules addresses the broadcasting of emergency information. Under our rules, and if requested by government officials, a station may, at its discretion, and without further FCC authority, transmit emergency point-to-point messages for the purpose of requesting or dispatching aid and assisting in rescue operations. If the Emergency Alert System ("EAS") is activated for a national emergency while a local area or state emergency operation is in progress, the national level EAS operation must take precedence.[69] AM stations may, without further FCC authority, use their full daytime facilities during nighttime hours to broadcast emergency information when necessary to protect the safety of life and property, in dangerous conditions of a general nature, and when adequate advance warning cannot be given with the facilities authorized.[70] All emergency alerts must be conducted on a noncommercial basis, but recorded music may be used to the extent necessary to provide program continuity. We tentatively conclude that it is in the public interest to apply the rules provided in Section 73.1250 to all audio streams broadcast by a radio station. The purpose of the rule is to fully inform the public of major emergencies and this mandate can only be fulfilled if it is broadly applied.

38. We realize that by requiring AM and FM radio broadcast stations to comply with Section 73.1250 of our rules for all audio streams (both analog and DAB), such stations may have to update and/or replace their EAS decoders to accommodate the digital portion of the stream. Nevertheless, we believe that access to emergency information is critical. We seek comment on the costs and timing involved in such compliance. Comments should specifically address the costs to the broadcasters relevant to ensuring that the DAB portion of the audio stream is compliant with Section 73.1250 simultaneous with a station's rollout of DAB. Comments should also address the costs to equipment vendors relevant to ensuring that all product development and related certification by the FCC would be complete in time to allow broadcasters to roll out DAB that is compliant with our emergency alert rules.

39. *Station Identification.* Under Section 73.1201 of the Commission's rules, broadcast station identification announcements must be made at the beginning and end of each time of operation, and as close to the hour as feasible, at a natural break in program offerings. Official station identification consists of the station's call letters immediately followed by the community or communities specified in its license as the station's location. The name of the licensee or the station's frequency or channel number, or both, as stated on the station's license may be inserted between the call letters and station location.[71] We seek comment on whether the station identification rules would apply to all digital audio content of a

[69] *See* 47 C.F.R. § 73.1250. Emergency situations in which the broadcasting of information is considered as furthering the safety of life and property include, but are not limited to the following: tornadoes, hurricanes, floods, tidal waves, earthquakes, icing conditions, heavy snows, widespread fires, discharge of toxic gasses, widespread power failures, industrial explosions, civil disorders and school closing and changes in school bus schedules resulting from such conditions. *Id.* § 73.1250(a).

[70] *Id.* § 73.1250(f). Because of skywave interference impact on other stations assigned to the same channel, such operation may be undertaken only if regular, unlimited-time service, is non-existent, inadequate from the standpoint of coverage, or not serving the public need

[71] *See* 47 C.F.R. § 73.1201.

radio station.[72] How should a station identify audio channels other than the main channel?[73] Should there be separate call letters for separate streams? There are special rules for simultaneous AM (535-1605 kHz) and (1605-1705 kHz) broadcasts. If the same licensee operates an AM broadcast station in the 535-1605 kHz band and an AM broadcast station in the 1605-1705 kHz band with both stations licensed to the same community and simultaneously broadcasts the same programs over the facilities of both such stations, station identification announcements may be made jointly for both stations for periods of such simultaneous operations.[74] We seek comment on how any proposed rule should differ, if at all, for AM radio stations.

40. There are a host of other programming and operational rules that are relevant here. These include: (1) Sections 73.132 and 73.232 –territorial exclusivity for AM and FM stations; [75] (2) Section 76.1208—broadcast of taped or recorded material;[76] (3) Section 73.1740—minimum hours of operation;[77] (4) Section 76.1212--sponsorship identification;[78] (5) Section 76.4180—payment

[72] In the Second DTV Periodic Notice of Proposed Rulemaking, we proposed to require digital television stations to follow the same rules for station identification as analog television stations. *See Second Periodic Review of the Commission's Rules and Policies Affecting the Conversion to Digital Television*, 18 FCC Rcd 1279, 1325 (2003). This proceeding is pending before the Commission.

[73] WOR in New York City identifies its digital signal on digital radio receivers as "710 WOR-HD: New York's FIRST Digital AM Radio Station." *See* Thomas R. Ray III, *HD Radio Receivers Reach Stations*, RADIO WORLD, January 2, 2004.

[74] *See* 47 C.F.R. § 73.1201(c)(2).

[75] *See* 47 C.F.R. §§ 73.132, 73.232. Under these rules, no licensee of an AM or FM broadcast station shall have any arrangement with a network organization that prevents or hinders another station serving substantially the same area from broadcasting the network's programs not taken by the former station, or which prevents or hinders another station serving a substantially different area from broadcasting any program of the network organization. This section does not prohibit arrangements under which the station is granted first call within its primary service area upon the network's programs.

[76] *See* 47 C.F.R. § 73.1208. Under this rule, any taped, filmed or recorded program material in which time is of special significance, or by which an affirmative attempt is made to create the impression that it is occurring simultaneously with the broadcast, must be announced at the beginning as taped, filmed or recorded. The language of the announcement shall be clear and in terms commonly understood by the public.

[77] *See* 47 C.F.R. § 73.1740. Under this rule, AM and FM commercial stations are to operate two-thirds of the total hours they are authorized to operate between 6 a.m. and 6 p.m. local time and two-thirds of the total hours they are authorized to operate between 6 p.m. and midnight, local time, each day of the week except Sunday. Noncommercial educational AM stations are not required to operate on a regular schedule and no minimum hours of operation are specified, but the hours of actual operation during a license period shall be taken into consideration in the renewal of noncommercial educational AM broadcast licenses. Noncommercial educational FM stations are subject to the operating schedule requirements set forth in Section 73 561 of the Commission's rules.

[78] *See* 47 C.F.R. § 73.1212. This rule implements Section 317 of the Act. 47 U.S.C. § 317(a)(1) ("All matter broadcast by any radio station for which any money, service or other valuable consideration is directly or indirectly paid, or promised to or charged or accepted by, the station so broadcasting, from any person, shall, at the time the same is so broadcast, be announced as paid for or furnished, as the case may be, by such person."). We note that questions regarding this requirement are raised in other parts of this *FNPRM*.

disclosure;[79] (6) Section 73.4055—cigarette advertising;[80] and (7) Section 508 of the Act—prohibited contest practices.[81] We tentatively conclude that the conversion to DAB will not require changes to the content of these regulations. However, we seek comment on how the rules should be applied to multicast services and whether the requirements apply to subscription services.

C. Technical Rules

1. Rule Amendments for the AM Service

41. *AM Definitions.* Section 73.14 of the Commission's rules contains the AM broadcast definitions. For example, the definition of AM broadcast channel is "the band of frequencies occupied by the carrier and the upper and lower sidebands of an AM broadcast signal with the carrier frequency at the center. Channels are designated by their assigned carrier frequencies. The 117 carrier frequencies assigned to AM broadcast stations begin at 540 kHz and progress in 10 kHz steps to 1700 kHz."[82] Numerous references are also made to amplitude modulation in Section 73.14. We seek comment on what changes in this section are necessary to accommodate the introduction of digital AM service.

42. *AM Nighttime Operations.* Two characteristics of the AM service have posed challenges to the development of AM IBOC. First, the nominal audio bandwidth of AM radio is insufficient to pass a full-fidelity monaural audio signal. Second, AM propagation characteristics vary drastically between day and night, resulting in two completely different allocation schemes (and, consequently, different daytime and nighttime facilities for most AM stations). During daytime hours, AM signals propagate principally via currents conducted through the earth, called groundwave propagation. Useful groundwave signals have a range of only about 200 miles for the most powerful AM stations, and less than 50 miles for many stations. After sunset, changes in the upper atmosphere cause the reflection of AM signals back to earth, resulting in the transmission of skywave signals over paths that may extend thousands of miles. Nighttime skywave propagation results in a much greater potential for inter-station interference. With the exception of powerful clear channel stations and relatively low-power local

[79] *See* 47 C.F.R. § 73.4180 This rule implements Section 507 of the Act. 47 U.S.C. § 508 ("Any employee of a radio station who accepts or agrees to accept from any person (other than such station), or any person (other than such station) who pays or agrees to pay such employee, any money, service or other valuable consideration for the broadcast of any matter over such station must, in advance of such broadcast, disclose the fact of such acceptance or agreement to such station.") This statutory section, in industry parlance, addresses "payola" and "plugola." Payola occurs when a station fails to announce the receipt of something valuable in return for the inclusion of material in a broadcast. Plugola describes a situation in which a station fails to identify an outside business interest of the licensee, its parent, its affiliates, or an employee in the broadcast of particular materials.

[80] *See* 47 C.F.R. § 73.4055. This rule implements Section 1335 of Title 15 of the U.S. Code, which makes it illegal to advertise cigarettes and little cigars on any medium of electronic communication subject to the Commission's jurisdiction.

[81] 47 U.S.C. § 509. Section 508 of the Act addresses prohibited practices in contests of knowledge, skill, or chance. Under the Act, it is unlawful for any person, with intent to deceive the listening or viewing public, to supply to any contestant in a purportedly bona fide contest of intellectual knowledge or intellectual skill any special and secret assistance whereby the outcome of such contest will be in whole or in part prearranged or predetermined.

[82] *See* 47 C.F.R. § 73.14.

stations, many AM stations are required to cease operation at sunset. Most of those that remain on the air at night must reduce power or use directional antenna systems, or both.

43. In the *DAB R&O*, we noted NRSC's finding that "[t]he design of the AM IBOC system is such that its addition to an AM broadcast signal will cause a reduction in the host analog signal-to-noise performance [*i.e.*, an increase in background noise, perceived as degradation in audio quality] at the receiver."[83] The NRSC stated that if the passband of the receiver extends beyond 5 kHz,[84] the receiver will detect the secondary digital carriers, which extend from approximately 5 kHz to 10 kHz above and below the AM carrier frequency.[85] The test results indicated, however, that audio quality should not be degraded sufficiently to impact listening.[86] With regard to the effect on other stations, the NRSC concluded that introduction of hybrid AM IBOC should not cause additional co-channel interference. Because the IBOC digital signal shares spectrum with the analog signal of a first adjacent AM station, however, the NRSC concluded that first adjacent channel compatibility is a significant issue for AM IBOC.[87] We found that the hybrid AM IBOC system proposed by iBiquity had the potential to provide the benefits of digital broadcasting within the framework of the existing AM allocation scheme. We nevertheless agreed with NRSC that significant uncertainty remains with respect to the potential for first adjacent channel interference under nighttime skywave propagation conditions. We therefore deferred authorizing nighttime use of AM IBOC until further testing has been completed.[88]

44. NAB, through its Radio Board, recently submitted recommendations to the Commission concerning nighttime operation of AM IBOC.[89] NAB suggests several steps the Commission should take regarding AM digital service: (1) the current interim authorization for IBOC service should be extended to allow AM IBOC nighttime broadcasts; (2) nighttime authorization should extend to all AM stations

[83] *DAB R&O*, 17 FCC Rcd at 19998, *citing* NRSC AM Report at 50.

[84] The radio frequency bandwidth of an analog AM signal is twice the audio bandwidth. For example, modulation of a carrier with a 10-kHz audio tone generates sidebands at +10 kHz and -10 kHz of the carrier frequency, for a total radio frequency bandwidth of 20 kHz. *See* 47 C.F.R. § 73.44.

[85] NRSC AM Report at 50.

[86] *Id* at 51.

[87] *Id* at 54.

[88] *See DAB R&O*, 17 FCC Rcd at 19998 The Commission has long recognized the need for AM station operation between the hours of 6:00 a.m. and local sunrise (the "pre-sunrise" hours) and between local sunset and 6 00 p.m. (the "post-sunset" hours). Section 73.99 of the rules provides for reduced-power pre-sunrise and post-sunset operation by AM stations where such operation will not cause impermissible interference to other stations. In view of the relatively low power to be employed for IBOC AM signals, the Commission permitted AM stations currently authorized to operate during the pre-sunrise and/or post-sunset periods to transmit IBOC signals during those times. Stations transmitting IBOC signals during pre-sunrise or post-sunset hours shall operate with the power and antenna pattern authorized for the time period. The Commission stated that the potential for skywave interference during the pre-sunrise and post-sunset hours is small, and that the benefit to the public by permitting broadcasters to implement IBOC operations between 6:00 a.m. and 6:00 p.m. during the winter months outweighs any potential interference impact. *See id.*

[89] *See* Letter to Marlene H. Dortch, Secretary, FCC, from Jack N. Goodman, Senior Vice President & General Counsel, NAB (March 5, 2004).

currently authorized for nighttime broadcasts; (3) nighttime authorization should be established on a blanket basis for all digital AM stations rather than requiring broadcasters to seek a separate nighttime authorization; and (4) the Commission should address instances of unexpected levels of interference on a case-by-case basis.[90] NAB also suggested that, in the event that there are reductions in stations' primary nighttime analog service areas, the Commission should take steps to address those problems. NAB states that its suggested measures will allow AM stations to "better understand the opportunities and challenges of IBOC" and will provide incentives for receiver manufacturers to market IBOC equipment.[91] The staff has issued a Public Notice seeking comment on NAB's recommendations and proposing that AM stations who wish to implement nighttime IBOC service immediately do so under the Commission's STA procedures.[92] We request comment here on expansion of interim IBOC procedures to allow all AM stations to implement IBOC service at night without prior authority, as NAB proposes. How else can we help facilitate improvement in the IBOC standard so that AM digital radio service can be received throughout the day and night?

45. *Interference.* In the interest of striking a balance between interference concerns and the strong interest of maximizing coverage, we adopted in the *DAB R&O*, a three-pronged approach to the issue of primary sideband power levels for AM. This approach was designed to provide a streamlined process to safeguard current reception of analog signals. First, we authorized AM stations to commence operation with the hybrid AM IBOC system tested by the NRSC, in accordance with the special temporary authorization and notification procedures specified in the *DAB R&O*.[93] Second, when interference problems are anticipated prior to commencement of interim IBOC operations, or when actual interference occurs, we permit licensees to adjust the power level of the primary digital subcarriers downward by as much as 6 dB. Licensees are required to notify the Commission of any such power adjustments.[94] Third, in cases in which the hybrid AM IBOC operation of one station results in complaints of actual interference within another station's protected service contour and the respective licensees are unable to reach agreement on a voluntary power reduction, we may order power reductions for the primary digital carriers or, in extreme cases, termination of interim IBOC operation. In such cases, an affected station may file an interference complaint with the Commission. This complaint must describe any test measures used to identify IBOC-related interference and fully document the extent of such interference. The Media Bureau is charged with resolving each complaint within ninety days. In the event the Bureau fails to issue a decision within ninety days of the date on which a complaint is filed, we held that the interfering station shall reduce immediately its primary digital subcarrier power level by 6 dB.[95] We seek comment on whether this complaint process is working, and, if so, whether we should make the process permanent when final IBOC standards are adopted. Are there any related instances

[90] *Id*

[91] *Id*

[92] *See* Public Notice--*Comment Sought on Use of Digital AM Transmissions During Nighttime Hours*, DA 04-1007 (rel. Apr. 14, 2004).

[93] *See DAB R&O*, 17 FCC Rcd at 20005.

[94] In order to preserve the integrity of the hybrid AM IBOC system, power reductions greater than 6 dB are not permitted without prior authority from the Commission. A licensee desiring such a reduction must file an informal letter request, setting forth its justification for the nonstandard operation.

[95] *See DAB R&O*, 17 FCC Rcd at 20000. This automatic power reduction requirement is without prejudice to any subsequent Bureau action on the pending complaint.

where the Commission may delegate authority to the Media Bureau to resolve matters in an expeditious manner?

46. *AM Stereo.* Section 73.128 of the Commission's rules sets forth the parameters for AM stereophonic broadcasting. Under this rule, an AM broadcast station may, without specific authority from the Commission, transmit stereophonic programs upon installation of type-accepted stereophonic transmitting equipment and the necessary measuring equipment to determine that the stereophonic transmissions conform to specific modulation characteristics.[96] The Commission's existing rules favor stations providing AM stereo. For example, stations in the expanded AM band are required to adopt stereo broadcasts for various reasons.[97] Because the DAB system is not designed to work with AM stereo broadcasts, stations converting to digital must discontinue stereo for their analog broadcasts. We seek comment on what rule changes are necessary in this context.

2. Rule Amendments for the FM Service

47. *FM Definitions.* Section 73.310 of the Commission's rules contains the technical definitions specific to the FM service. For example, an FM broadcast channel is defined as a band of frequencies 200 kHz wide and designated by its center frequency.[98] Channels for FM broadcast stations begin at 88.1 MHz and continue in successive steps of 200 kHz to and including 107.9 MHz. We seek comment on which definitions, including the definition of FM broadcast channel, need to be changed or modified because of the introduction of DAB [99]

48. *FM Operating Power* Section 73.211 of the Commission's rules addresses power and antenna height requirements for FM stations. Generally, analog FM stations must operate with a minimum effective radiated power ("ERP") as follows: (1) the minimum ERP for Class A stations is 0.1 kW; (2) the ERP for Class B1 stations must exceed 6 kW; (3) the ERP for Class B stations must exceed 25 kW; (4) the ERP for Class C3 stations must exceed 6 kW; (5) the ERP for Class C2 stations must exceed 25 kW; (6) the ERP for Class C1 stations must exceed 50 kW; and (7) the minimum ERP for Class C and C0 stations is 100 kW. Class C0 stations must have an antenna height above average terrain ("HAAT") of at least 300 meters (984 feet). Class C stations must have an antenna height above average terrain of at least 451 meters (1480 feet). Stations of any class except Class A may have an ERP less than that specified in Section 73.211, provided that the reference distance exceeds the distance to the class contour for the next lower class. Class A stations may have an ERP less than 100 watts provided that the reference distance equals or exceeds 6 kilometers.[100]

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[96] *See* 47 C.F.R. § 73.128.

[97] *See Review of the Technical Assignment Criteria for the AM Broadcast Service*, 6 FCC Rcd 6273, 6331-32 (1991) (noting that "AM stereo is a valuable asset" and "The use of AM stereo will enhance the competitiveness of stations in the expanded band by providing the highest audio fidelity available through use of state-of-the-art AM equipment.").

[98] The center frequency of each channel is 100 kHz from the upper and lower edges of the channel, and the frequency modulated signal in each channel swings in frequency from the center frequency toward the channel edges, and has its radiated power envelope shaped such that virtually all of the energy of the signal is contained within the channel.

[99] *See* 47 C.F.R. § 73.310.

[100] *See* 47 C.F.R. § 73.211.

49. Outside of their assigned channels, the emissions of analog FM radio signals must be attenuated below the level of the unmodulated carrier frequency: (1) by at least 25 dB at any frequency removed from the center frequency by 120 kHz up to 240 kHz; (2) by at least 35 dB at any frequency removed from the center frequency by 240 kHz up to and including 600 kHz; and (3) by at least 43 dB + 10 log (Power, in watts) dB on any frequency removed by more than 600 kHz from the center frequency.[101] This emission mask ensures that FM broadcast emissions are reasonably confined within the 200 kHz channel width. The digital component of the FM IBOC system operates 20 dB below the level of the analog carrier. When there is no analog carrier (*i.e.* all digital operations), it is not possible to set the digital power relative to the analog power level. Rather than specifying digital as 20 dB below analog, it may be preferable to set an absolute level for digital carriers that could be calculated without reference to analog. We seek comment on the appropriate means to measure and calculate power levels. We also seek comment on the appropriate measurement instruments for this exercise. How should any new rule take into account combiner and filter loss?

50. Radio stations with antennas at high elevations operate at relatively low power. Because the IBOC signal is transmitted at a fraction of analog power (1% in the FM case), the digital signals can be extremely low power in certain cases. In some cases, these digital signals may fall below the noise floor and become unlistenable. We seek comment on how to address this matter. Specifically, should the Commission establish a minimum digital power level, even if that would exceed 20 dB below the analog signal? Commenters should submit evidence to substantiate recommended power levels.

51. *TV Channel 6.* Section 73.525 of the Commission's rules addresses interference protection for TV Channel 6. An affected TV Channel 6 station is a TV broadcast station authorized to operate on Channel 6 that is located within certain distances of a noncommercial educational FM station operating on Channels 201-220.[102] We seek comment on what, if any, rule changes are necessary to protect TV Channel 6 from interference caused by digital radio operations. We also ask whether new rules need to be developed to protect television station licensees that have converted to digital operations and are assigned to Channel 6 under our DTV Table of Allotments.

52. *Antennas* The initial grant of interim IBOC authority restricted stations to use of facilities similar to those evaluated by the NRSC. As a result, stations were restricted to transmission systems that combine the digital and analog signals into one antenna. When a single antenna is used for IBOC, the analog and digital FM signals may be combined after amplification (high-level combining), a method which results in substantial power losses for the digital signal. Stations with lower effective radiated power may combine the analog and digital signals before amplification (low-level combining), in which case the transmitter efficiency is reduced. Many broadcasters have expressed interest in using separate antennas for the analog and digital signals. Consequently, the NAB convened an *ad hoc* technical group to determine whether broadcasters could use this approach without causing interference to the host station's analog signal or to other FM stations. Based on the completed field tests, the NAB report proposed that the Commission permit FM stations implementing IBOC operations to use separate antennas for digital transmissions provided that certain criteria are met. On December 9, 2003, the Media Bureau released a Public Notice seeking comments on the test results, conclusions, and

[101] *See* 47 C.F.R. § 73 317.

[102] Section 73.525 applies to all applications for construction permits for new or modified facilities for an NCE-FM station on Channels 200-220 unless the application is accompanied by a written agreement between the NCE-FM applicant and each affected TV Channel 6 broadcast station concurring with the proposed NCE-FM facilities. *See* 47 C.F.R. § 73.525.

recommendations in the report of the NAB *ad hoc* technical committee.[103] The Media Bureau authorized the use of a dual antenna system under certain conditions earlier this year.[104] While this issue has previously been addressed by the staff, we seek further comment on this matter and ask what other policies we may adopt that would provide broadcasters with the flexibility to make changes in their antenna configurations. For example, should we grant delegated authority to the Media Bureau to approve certain types of antenna modifications? Should we adopt a presumptive approach to antenna modifications by which a station can make any changes as long as it clears the change with adjacent stations?

53. *Predicted Coverage.* Section 73.313 of the Commission's rules concerns FM predicted coverage. With the analog FM system, all predictions of coverage are made without regard to interference and only on the basis of estimated field strengths.[105] We seek comment on whether this rule needs to be modified to encompass the different nature of digital audio transmissions. If so, what should the rule require?

54. *FM Booster and Translator Stations.* FM booster and FM translator stations provide important service to many mountainous and rural areas of the country, where few other radio signals are available.[106] By their nature, the translator and booster services present unique challenges for IBOC operation. An FM translator station receives a signal from its primary FM station and converts the signal for re-broadcasting on a different FM frequency. An FM booster station relays the primary station's programming on the same FM frequency. The implementation of IBOC should not affect the ability of translator and booster stations to continue the analog service they now provide. The record in this proceeding does not yet clearly establish, however, whether booster and translator stations will be able to relay the digital portion of IBOC signals. Tests performed by iBiquity indicate that an FM booster station will be able to relay the primary station's hybrid IBOC signal provided the booster is within 14 miles of the primary station. We received no test results or comments regarding use of IBOC by FM translator stations. Although some translator stations may be able to retransmit the digital component of an IBOC signal, we expect that many translator stations will need equipment modifications to do so. For these reasons, we solicit comment on issues relating to FM translator and booster stations. For example, should our rules facilitate the establishment of additional digital boosters to fill in areas with poor analog coverage? Will stations converting their main signal be required to simultaneously convert their boosters and/or translators?

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[103] FCC Public Notice, *Comment Sought on Use of Separate Antennas to Initiate Digital FM Transmissions* (rel. Dec. 9, 2003).

[104] FCC Public Notice, *Use of Separate Antennas to Initiate Digital FM Transmissions Approved* (rel. March 17, 2004). The Media Bureau permitted conforming dual antenna FM IBOC transmissions pursuant to routine special temporary authorization ("STA") procedures under Section 73.1635 of the Commission's rules. Stations must request STA at least 10 days prior to the planned date of commencement of IBOC transmissions. The STA request shall contain, *inter alia*, the date that interim operation is planned to commence and a certification that the IBOC facilities conform to the iBiquity hybrid specification. *See id.* The Media Bureau noted that the matter of expanded notification procedures, as recommended by the NAB test report, would be deferred for consideration at a future date.

[105] *See* 47 C.F.R. § 73.313

[106] *See generally* 47 C.F.R § 74.1231.

55. Section 74.1231(b) currently restricts commercial FM translators not providing "fill-in" service from using alternate means of signal delivery; that is, such translators must rely on direct, over-the-air reception of the primary FM station.[107] However, this may not be feasible for IBOC transmission. We seek comment on whether this rule should be modified for IBOC operation. How will this affect broadcast localism? If translators are allowed to use alternate delivery means, should there be some geographic or other limits to the delivery of the digital signal to the translator?

3. Standards

56. In the *DAB R&O*, we stated that the adoption of a standard will facilitate the rollout of digital audio broadcasting.[108] We further stated that the Commission's support of a standard-setting process was designed to provide regulatory clarity and to compress the timeframe for finalizing the rules and policies that will affect the ultimate success of DAB. We solicited the assistance of a broad cross-section of interested parties in developing a formal AM and FM IBOC standard through a public and open standard-setting process. We stated that we were encouraged by the action of the NRSC to form an IBOC standards development working group, formally initiating a process designed to establish AM and FM IBOC standards. We encourage this group to provide us with significant input at this stage of the proceeding and seek comment from other parties on any such submissions.

4. Patents

57. In earlier stages of this proceeding, many parties stated that adoption of iBiquity's IBOC system would require the use of certain patented technologies. They expressed concern that the Commission's endorsement of the iBiquity system will create an opportunity for these patent holders to impose excessive licensing fees on broadcasters and listeners who have no alternative source for the technology.[109] In response, iBiquity agreed to abide by the guidelines common to open standards, which require that licenses be available to all parties on fair terms. iBiquity also stated that it would adhere to the Commission's patent policy.[110] The Commission stated that its decision to permit interim operations during the pendency of this proceeding provided an opportunity to assess whether iBiquity and other patent holders were entering into licensing agreements under reasonable terms and conditions that are demonstrably free of unfair discrimination. The Commission stated that it would monitor this situation and seek additional comment as warranted.[111] We seek comment on iBiquity's conduct during the interim period. We also seek comment on whether this matter needs to be further addressed now or whether we should wait until radio station conversion has progressed to a point at which digital receivers have substantially penetrated the market.

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[107] *Id.* at 74 1231(b)

[108] *Id.* at 20006.

[109] *See DAB R&O*, 17 FCC Rcd at 20002. Noncommercial radio stations are exempt from iBiquity royalties for any data services they offer, but commercial broadcasters may have to pay royalties for data services under existing licensing agreements. *See* Leslie Stimson, *Fee or No Fee for a Secondary Channel*, RADIO WORLD, March 1, 2004.

[110] *See* Revised Patent Procedures of the Federal Communications Commission, 3 FCC 2d 26 (1966).

[111] *See DAB R&O*, 17 FCC Rcd at 20002.

5. Equipment Authorization

58. Section 2.907 of the Commission's rules concerns the certification of electronic equipment. Certification is an equipment authorization issued by the Commission, based on representations and test data submitted by the applicant. Certification attaches to all units subsequently marketed by the grantee which are identical to the sample tested except for permissive changes or other variations authorized by the Commission.[112] We seek comment on what, if any, rules in Part 2 of our regulations must be modified to allow manufacturers to obtain certification of digital exciters and digital-compatible transmitters. How should these rule changes be coordinated with other service rule changes possible in this proceeding?

D. Licensing and Forms

59. Under Section 73.1695 of the Commission's rules, the Commission considers the question of whether a proposed change or modification of a transmission standard for a broadcast station would be in the public interest.[113] Sections 73.3571 and 73.3573 of the Commission's rules discuss the processing of AM and FM broadcast station applications, respectively.[114] We seek comment on what, if anything, the Commission should do to amend or replace these rules in the context of DAB.

60. Section 73.3500 of the Commission's rules lists the applications and report forms that must be filed by an actual or potential broadcast licensee in certain circumstances.[115] We seek comment on which forms and applications must be modified because of DAB. The following forms may be at issue: (1) Form 301—Application for Authority to Construct or Make Changes in a Commercial Broadcast Station; (2) Form 302-AM--Application for AM Broadcast Station License; (3) Form 302-FM—Application for FM Broadcast Station License; (4) Form 313—Application for Authorization in the Auxiliary Broadcast Services; (5) Form 340—Application for Authority to Construct or Make Changes in a Noncommercial Educational Broadcast Station; (6) Form 349-Application for Authority to Construct or Make Change in an FM Translator or FM Booster Station; and (7) Form 350—Application for an FM Translator or FM Booster Station License. We seek comment on any specific changes to these forms.

E. Noncommercial Stations

61. Noncommercial radio broadcasters face unique opportunities and challenges as they move to implement DAB. The Act defines a "noncommercial educational broadcast station" and "public broadcast station" as a television or radio broadcast station that is eligible under the Commission's rules to be licensed as "a noncommercial educational radio or television broadcast station which is owned and operated by a public agency or nonprofit private foundation, cooperation, or association" or "is owned and operated by a municipality and which transmits only noncommercial programs for educational purposes."[116] In 1981, Congress amended the Act to give public broadcasters more flexibility to generate

[112] *See* 47 C.F.R. § 2.907.

[113] *See* 47 C.F.R. § 73.1695.

[114] *See* 47 C.F.R. §§ 73.3571, 73.3573.

[115] *See* 47 C.F.R. § 73.3500.

[116] 47 U.S.C § 397(6).

funds for their operations.[117] As amended, Section 399B of the Act permits public stations to provide facilities and services in exchange for remuneration as long as those uses do not interfere with the stations' provision of public telecommunications services.[118] Section 399B, however, does not permit public broadcast stations to make their facilities "available to any person for the broadcasting of any advertisement."[119] In addition, under Section 73.621 of the Commission's rules, public television stations are required to furnish primarily an educational as well as a nonprofit and noncommercial broadcast service.[120]

62. In 2001, the Commission concluded that noncommercial educational television licensees ("NCEs") must use their entire digital television capacity primarily for nonprofit, noncommercial, educational broadcast services.[121] In addition, the Commission held that the statutory prohibition against broadcasting of advertising on NCE television stations applies only to broadcast programming streams provided by NCE licensees, but does not apply to any ancillary or supplementary services presented on their excess DTV channels that do not constitute broadcasting.[122] Like commercial DTV stations, NCE licensees must pay a fee of five percent of gross revenues generated by ancillary or supplementary services provided on their DTV service. In *Office of Communication, Inc. of United Church of Christ v. F.C.C.*, the U.S. Court of Appeals for the District of Columbia Circuit upheld our *DTV NCE A&S Order*.[123]

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[117] Omnibus Budget Reconciliation Act of 1981, Pub. Law No. 97-35, § 1231, 95 Stat. 357, 731 (codified at 47 U.S C. § 399B). *See also* H.R. Rep. No. 97-82, at 13-14.

[118] Section 399B also requires that public stations engaged in revenue generating activities comply with accounting procedures designed to separately identify these commercial revenues and costs, and it prohibits Corporation for Public Broadcasting funds from being used to defray any costs associated with these activities. 47 U.S.C. § 399B

[119] 47 U.S.C. § 399B(a)(2).

[120] Section 73.621 of the Commission's Rules, 47 C.F.R. § 73.621, provides that "noncommercial educational broadcast stations will be licensed only to nonprofit educational organizations upon a showing that the proposed stations will be used primarily to serve the educational needs of the community; for the advancement of educational programs; and to furnish a nonprofit and noncommercial television broadcast service." Section 73.503 of the Commission's rules addresses the licensing requirements and service of noncommercial educational FM stations. Under our rules, a noncommercial educational FM broadcast station will be licensed only to a nonprofit educational organization and upon showing that the station will be used for the advancement of an educational program. *See* 47 C F.R. § 73.503(a)(2). Although the Commission does not reserve frequencies for NCE use in the AM service, and thus has not codified noncommercial eligibility rules for this service, the Commission has treated AM stations that satisfy the noncommercial FM eligibility rules as noncommercial AM stations. *See Reexamination of the Comparative Standard for Noncommercial Educational Applicants*, 18 FCC Rcd 6691, 6695 n.28 (2003).

[121] *See Ancillary or Supplementary Use of Digital Television Capacity by Noncommercial Licensees*, 16 FCC Rcd 19042 (2001) ("*DTV NCE A&S Order*")

[122] *Id*

[123] *Office of Communication, Inc of United Church of Christ v F.C.C.*, 327 F.3d 1222 (D.C. Cir., 2003) ("*UCC*" decision).

63. We seek comment on what, if any, special rules or considerations should apply to noncommercial radio stations in light of our DTV NCE A&S policy and the D.C. Circuit's *UCC* decision. Should we adopt the same approach for noncommercial radio stations as we adopted for NCE television licensees? Are there any differences between DTV and DAB that require special consideration in deciding this issue? Specifically, we ask whether a noncommercial radio station should be able to use excess digital audio spectrum capacity to generate revenue through the provision of supplementary services, such as fee-based services. Are there other ways of allowing a noncommercial radio station to exercise greater flexibility with its digital capacity? We also seek comment on how we can ensure noncommercial radio stations remain noncommercial in nature as the radio industry converts to DAB.

F. Low Power FM

64. In 2000, the Commission authorized the licensing of two new classes of FM radio stations, one operating at a maximum power of 100 watts and one operating at a maximum power of 10 watts.[124] Both types of stations, known as low power FM stations ("LPFM"), were authorized in a manner that protects existing FM service. A 100 watt LPFM station can serve an area with a radius of approximately 3.5 miles. The Commission stated that LPFM stations would be operated on a noncommercial educational basis by entities that do not hold an attributable interest in any other broadcast station or other media subject to our ownership rules. The Commission established the new LPFM service to create new broadcasting opportunities for locally-based organizations to serve their communities.

65. In December 2000, Congress passed the Government of the District of Columbia Appropriations Act, FY 2001 (the "DCAA"). That legislation required the Commission to prescribe third-adjacent channel spacing requirements for LPFM stations, and invalidate any existing licenses that did not comply with the new separation criteria.[125] Congress instructed the Commission to conduct an experimental program to test whether LPFM stations would interfere with existing FM stations, if LPFM stations were not subject to third-adjacent channel spacing requirements. Congress also instructed that such tests determine whether LPFM will interfere with full power stations' digital audio broadcasting efforts.[126] The DCAA directed the Commission to select an independent entity to conduct field tests and to "publish the results of the experimental program and field tests and afford an opportunity for the public to comment on such results." The Commission selected the MITRE Corporation as the independent entity that would conduct the testing. On June 30, 2003, MITRE submitted its Final Report ("LPFM Report") to the Commission. The Report describes the field measurement data collected and analyzes it with regard to the levels of harmful interference experienced. The LPFM Report also contains theoretical analysis, conclusions, and recommendations to the Commission. Pertinent to the discussion here, the Report found that LPFM will not interfere with DAB service provided by full power radio

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[124] *See generally Creation of Low Power Radio Service*, 15 FCC Rcd 2205 (2000).

[125] In response to the DCAA, the Commission codified two rule changes. Section 73.807, as modified, now requires that LPFM stations meet prescribed minimum distance separations to full service FM and FM translator stations operating on third adjacent channels. Section 73.854 now prohibits an applicant from obtaining an LPFM license if that applicant, or any party to the application, has engaged in any manner in the unlicensed operation of any station in violation of Section 301 of the Act. *See* 47 C.F.R. §§ 73.807 and 73.854.

[126] *See* Section 632(b)(3)(B)(iii) of the Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations Act, 2001.

stations.[127] On July 11, 2003, the Media Bureau issued a Public Notice seeking comment on the LPFM Report. On February 19, 2004, a Report to Congress on the LPFM interference testing program was issued in accordance with the DCAA. That Report reiterated the finding that third-adjacent channel LPFM stations will have little or no effect on terrestrial digital radio since third-adjacent channel LPFM interference to digital receivers is unlikely to occur beyond 130 meters from the LPFM transmitter.[128]

66. We do not seek further comment on the LPFM Report in this proceeding. Instead, we seek comment on the conversion of LPFM stations to digital operation, and the potential impact of such a conversion on other stations.

V. NOTICE OF INQUIRY

A. Digital Audio Content Control

67. An issue that has been raised as a potential concern involves the possibility of indiscriminate recording and Internet redistribution of musical recordings that are part of digital audio broadcasts. The Recording Industry Association of America ("RIAA"), more specifically, has recently raised this concern with the Commission.[129] It appears likely that future digital audio broadcast receivers will include advanced features such as digital recorders capable of storing audio content and that digital audio broadcast transmissions are likely to include specific song identifications in the "metadata" within the digital data stream Using this data, it may be possible to have a recording device automatically search for and record a large amount of the music of an individual artist or group or find and record particular specified song titles to the extent the songs are broadcast locally. RIAA has stated that "digital audio receivers will be able to parse digital broadcasts on a song by song basis, thereby enabling listeners to copy the entire repertoire of individual artists with the push of a button and without even listening to a radio station's broadcast programming." It further states that "these devices could also permit listeners to transfer songs to other devices for serial copying and distribution over the Internet."[130] RIAA expresses concern that the launch of digital audio broadcasting, in an unencrypted manner, will permit consumers to "exploit" recorded music in ways that "ignore the intellectual property interests" of the recording labels and artists and deprive them of legitimate compensation.[131]

68. Although no specific proposal for action has been submitted to the Commission, we are mindful that certain available options may be extremely difficult to implement later after a significant base of equipment has been deployed and consumer expectations have developed. Accordingly, we believe these issues warrant exploration at this time. We ask whether the concerns raised by RIAA warrant Commission action either in terms of the technical standards that govern the service or the rules that govern the conduct of digital audio broadcasters.

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[127] *See* MITRE Report, Vol. 1: Section 3 and Vol. 1 Section 5.1.6.

[128] *See* Report to the Congress on the Low Power FM Interference Testing Program, Pub. L. No. 106-553, at 3.

[129] *See* Letter to Mary Beth Murphy, Chief, Policy Division, Media Bureau, FCC, from Theodore Frank, Counsel for the Recording Industry Association of America, dated October 2, 2003.

[130] *Id*

[131] *Id.* at 2.

69. We seek specific comment on two central issues: (1) does a problem exist that requires governmental intervention; and (2) to what extent can, and should, the Commission involve itself in this matter. As to the former, we seek comment on the extent of the alleged harms raised by RIAA. Specifically, is the copying of DAB content for noncommercial use by consumers a threat to recording artists and copyright holders? What evidence is there that injury has been, or will be, incurred? For example, what economic injuries have recording artists suffered in countries, such as Great Britain, where DAB is now commonplace?[132] Is the problem of home copying limited to DAB or does the alleged threat extend to SDARS and analog audio content converted to a digital format? What are the possible solutions to the matters raised by RIAA? We note that Congress has addressed certain issues relating to the recording of broadcast music through adoption of the Audio Home Recording Act of 1992.[133] We seek comment on the relationship between this Act and any action the Commission might be requested to take. In what ways does the solution RIAA seeks go beyond the protections we put in place against indiscriminate Internet redistribution for digital television transmissions?[134] What other issues are implicated by potential restrictions on storage, recording, or home copying? We also seek comment on the source of our authority to act on RIAA's concerns if there is substantial evidence of harm on the record. Could we reasonably conclude that free over-the-air radio broadcasting would be threatened by digital audio copying to an extent sufficient to invoke our public interest authority under Section 4(i) of the Act?

B. International Issues

70. Section 73.207 discusses international agreements relating to FM broadcasting. The rule states that under the Canada-United States FM Broadcasting Agreement, domestic U.S. allotments and assignments within 320 kilometers (199 miles) of the common border must be separated from Canadian allotments and assignments by not less than the distances provided in the Commission's rules. It also states that under the 1992 Mexico-United States FM Broadcasting Agreement, domestic U.S. assignments or allotments within 320 kilometers (199 miles) of the common border must be separated from Mexican assignments or allotments by not less than the distances in Section 73.207.[135]

71. Test results have indicated that hybrid IBOC operation is consistent with the Commission's allocation rules. It is anticipated that hybrid operation would also conform to the allocation standards contained in our international agreements governing AM and FM stations. In the *DAB R&O*, the Commission stated that during the period of interim IBOC operation, all relevant international agreements will be reviewed and any necessary modifications will be addressed at a later date.[136] These matters are being informally addressed by the Commission's International Bureau at this

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[132] *See* Dugie Standeford, *Government Should Plan To End Analog Radio, U.K. Digital Radio Group Says*, COMMUNICATIONS DAILY, January 26, 2004, at 9 (Eureka-based digital audio receivers have been selling at a rate of 100,000 per month in Great Britain and other European countries).

[133] *See* Pub. L. No. 102-563, 106 Stat. 4237 (1992); 17 U.S.C. §§1001-1010.

[134] *Digital Broadcast Copy Protection*, 17 FCC Rcd 16027 (2002) ("*NPRM*"); *Digital Broadcast Copy Protection*, 18 FCC Rcd 23550 (2003) ("*Report and Order*").

[135] *See* 47 C.F.R. § 73.207.

[136] *See DAB R&O*, 17 FCC Rcd at 20006 n.73.

time. What matters should the International Bureau focus on to expedite the rollout of DAB in the United States?

VI. PROCEDURAL MATTERS

A. Filing Requirements

72. *Ex Parte Rules.* This proceeding will be treated as a "permit-but-disclose" proceeding subject to the "permit-but-disclose" requirements under Section 1.1206(b) of the Commission's rules.[137] *Ex parte* presentations are permissible if disclosed in accordance with Commission rules, except during the Sunshine Agenda period when presentations, *ex parte* or otherwise, are generally prohibited. Persons making oral *ex parte* presentations are reminded that a memorandum summarizing a presentation must contain a summary of the substance of the presentation and not merely a listing of the subjects discussed. More than a one- or two-sentence description of the views and arguments presented is generally required.[138] Additional rules pertaining to oral and written presentations are set forth in Section 1.1206(b).

73. *Comments and Reply Comments.* Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 C.F.R. §§ 1.415, 1.419, interested parties must file comments on or before June 16, 2004 and reply comments on or before July 16, 2004. Comments may be filed using the Commission's Electronic Comment Filing System ("ECFS") or by filing paper copies. *See Electronic Filing of Documents in Rulemaking Proceedings*, 63 Fed. Reg. 24121 (1998). Accessible formats (computer diskettes, large print, audio recording, and Braille) are available to persons with disabilities by contacting Brian Millin, of the Consumer & Governmental Affairs Bureau, at (202) 418-7426, TTY (202) 418-7365, or at brian.millin@fcc.gov.

74. Comments filed through the ECFS can be sent as an electronic file via the Internet to http://www.fcc.gov/e-file/ecfs.html. Generally, only one copy of an electronic submission must be filed. In completing the transmittal screen, commenters should include their full name, U.S. Postal Service mailing address, and the applicable docket or rulemaking number. Parties may also submit an electronic comment by Internet e-mail. To get filing instructions for e-mail comments, commenters should send an e-mail to ecfs@fcc.gov, and should include the following words in the body of the message, "get form <your e-mail address>." A sample form and directions will be sent in reply.

75. Parties who choose to file by paper must file an original and four copies of each filing. Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service (although we continue to experience delays in receiving U.S. Postal Service mail). The Commission's contractor, Natek, Inc., will receive hand-delivered or messenger-delivered paper filings for the Commission's Secretary at 236 Massachusetts Avenue, NE, Suite 110, Washington, DC 20002. The filing hours at this location are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of before entering the building. Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743. U.S. Postal Service first-class mail, Express Mail, and Priority Mail, should be addressed to 445 12th Street, SW, Washington, DC

[137] 47 C.F.R. § 1.1206(b), as revised.

[138] *See id.* at § 1.1206(b)(2).

20554. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

76. *Additional Information.* For additional information on this proceeding, contact Ben Golant, ben.golant@fcc.gov, of the Media Bureau, Policy Division, (202) 418-7111.

B. Initial Regulatory Flexibility Certification

77. The Regulatory Flexibility Act of 1980, as amended ("RFA"),[139] requires that a regulatory flexibility analysis be prepared for notice and comment rule making proceedings, unless the agency certifies that "the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities."[140] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[141] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[142] A "small business concern" is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).[143]

78. As required by the RFA, an Initial Regulatory Flexibility Analysis ("IRFA") was incorporated in the *NPRM* in MM Docket No. 99-325. The Commission sought written public comments on the proposals in the *NPRM* including comments on the IRFA. The Office of Advocacy, U.S. Small Business Administration (SBA) filed comments asserting that the Commission, in the IRFA, failed to adequately consider the potential impact of DAB on small businesses and did not discuss alternatives designed to minimize regulatory burdens on small entities.[144] In the *DAB R&O*, the Commission promised to issue a *FNPRM* proposing final rules for digital audio broadcasting and stated it would consider the impact of any final rules on small entities in connection with that further proceeding. By the issuance of this *FNPRM*, we seek comment on the impact our suggested proposals would have on small business entities.

79. The Commission will send a copy of the *FNPRM/NOI*, including a copy of the Initial Regulatory Flexibility Act analysis, in a report to Congress pursuant to the Congressional Review Act.[145]

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[139] The RFA, *see* 5 U S C § 601 – 612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 ("SBREFA"), Pub. L No. 104-121, Title II, 110 Stat. 857 (1996)

[140] 5 U S.C. § 605(b).

[141] 5 U.S.C. § 601(6).

[142] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register."

[143] 15 U.S.C. § 632.

[144] SBA comments at 2.

[145] *See* 5 U.S C § 801(a)(1)(A)

In addition, a copy of the *FNPRM/NOI* will be sent to the Chief Counsel for Advocacy of the SBA, and will be published in the Federal Register.[146]

80. This document is available in alternative formats (computer diskette, large print, audio record, and Braille). Persons with disabilities who need documents in these formats may contact Brian Millin at (202) 418-7426 (voice), (202) 418-7365 (TTY), or via e-mail at bmillin@fcc.gov.

C. Paperwork Reduction Act Analysis

81. This *FNPRM* may lead to a Report and Order that would contain information collection(s) subject to the Paperwork Reduction Act of 1995 ("PRA"), Public Law 104-13. This *FNPRM* will be submitted to the Office of Management and Budget ("OMB") for review under the PRA. OMB, the general public and other Federal agencies are invited to comment on the possible information collections, such as FCC form revisions, contained in this proceeding. Comments should address: (a) whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; (b) the accuracy of the Commission's burden estimates; (c) ways to enhance the quality, utility, and clarity of the information collected; and (d) ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology.

82. Written comments on possible new and modified information collections must be submitted on or before 60 days after date of publication the Federal Register. In addition to filing comments with the Secretary, a copy of any Paperwork Reduction Act comments on the information collection(s) contained herein should be submitted to Leslie Smith, Federal Communications Commission, Room 1-A804, 445 12th Street, SW, Washington, DC 20554, or via the Internet to Leslie Smith@fcc.gov, and to Kristy L. LaLonde, OMB Desk Officer, Room 10234 NEOB, 725 17th Street, N.W., Washington, DC 20503 via the Internet to KristyL.LaLonde@omb.eop.gov or by fax to 202-395-5167.

83. For additional information concerning the information collection(s) contained in this document, contact Leslie Smith at 202-418-0217, or via the Internet at Leslie.Smith@fcc.gov.

[146] *See* 5 U.S.C. § 605(b).

VII. ORDERING CLAUSES

84. Accordingly, **IT IS ORDERED**, pursuant to the authority contained in Sections 1, 2, 4(i), 303, 307, 312(a)(7), 315, 317, 507, and 508 of the Communications Act of 1934, 47 U.S.C §§ 151, 152, 154(i), 303, 307, 312(a)(7), 315, 317, 508, and 509, this *Further Notice of Proposed Rulemaking/Notice of Inquiry* **IS ADOPTED**.

85. **IT IS FURTHER ORDERED** that the Consumer and Governmental Affairs Bureau, Reference Information Center, **SHALL SEND** a copy of this *Further Notice of Proposed Rulemaking/Notice of Inquiry*, including the Initial Regulatory Flexibility Certification, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary